REMARKS

Prior to this communication, claims 1 – 3, 7, 8, 10 – 16, 20 – 26, 28, 29, 32, 34 – 41, 45, 46, 48 – 54 and 56 – 58 are pending in the application. In this Amendment, Applicants are canceling claim 25; and amending claims 15, 26, 34, 53, 54, 56, 57. Examination and reconsideration in view of the amendments and remarks contained herein are requested.

CLAIM OBJECTIONS – 37 CFR 1.75

The Office objected to claim 25 under 37 CFR 1.75 as being a substantial duplicate of claim 23. Applicants have canceled claim 25. Therefore, the objection is now moot.

CLAIM REJECTIONS – 35 U.S.C. § 112

The Office rejected claim 34 under 35 U.S.C. § 112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Applicants amended claim 34 to correct the dependency of the claim. Accordingly, Applicants request withdrawal of the rejection.

CLAIM REJECTIONS – 35 U.S.C. § 102

The Office rejected claims 1 – 3, 7, 8, 11, 13, 15, 16, 20, 22, 24, 39 – 41, 45, 46, 49, 51, 53, 54, 56 – 58 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Number 5,213,438 ("Miyazaki").

Independent claims 1 and 7

With respect to claims 1 and 7, the Office indicated that Miyazaki discloses "a plurality of power inputs (inputs to 2/6)," "a first voltage input coupled to one of the power inputs (PS) of the switch (2) and configured to receive a first voltage (voltage from PS)," "a second voltage input (PS) and a second power input of the switch (6)," "a summing module (Fig. 1: summing node above 19, Fig. 2: node below 18) coupled to the voltage inputs to receive the first and second voltages and configured to generate different signals represents the receipt of the voltages; and a controller (15 or Fig. 8:43) coupled to the module to receive the different signals and configured to generate a control signal based on the different signals and to selectively

control the coupling of one of the first voltage and the frequency regulated voltage to the motor (Col. 4:32-49)," among other things. (Page 3 of pending Action.)

Applicants respectfully disagree.

Miyazaki does not teach or suggest "a module coupled to the first and second voltage inputs to receive the first and second voltages, and configured to generate different signals representing the receipt of the first and second voltages," and "a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," among other things, as required by claim 1.

Rather, Miyazaki discloses a node (node above element 19 of Fig. 1) that subtracts an output (θ_v) of a voltage phase arithmetic unit 18 from another output (θ_p) of a transformer 9. Output ($\Delta\theta$) of the node is subsequently fed to a speed reference arithmetic unit 19. (See Figure 1.) Particularly, Miyazaki discloses that "the speed-reference arithmetic unit 19 computes a torque current reference I_{qa}* from the difference in phase $\Delta\theta$ between the motor-voltage phase θ_v and the power-supply-voltage phase θ_p and the torque current reference I_{qa}* is fed into the current-reference arithmetic unit 20." (Col. 3, lines 61 – 66.) Even if Applicants were to construe the "first voltage input coupled to one of the power inputs (PS)" as the claimed first voltage input and the "a second voltage input (PS)" as the claimed second voltage input, the node above the speed-reference arithmetic unit 19 does not "receive the first and second voltages," as required by claim 1. That is, Miyazaki does not teach or suggest a "module coupled to the first and second voltage inputs to receive the first and second voltages, and configured to generate different signals representing the receipt of the first and second voltages," as required by claim 1.

Similarly, Miyazaki discloses a node (Fig. 2: node below 18) that subtracts an output (θ_v) of a voltage phase arithmetic unit 18 from another output (θ_p) of a transformer 9. Output ($\Delta\theta$) of the node is subsequently fed to a switch 16. (See Figure 2.) Particularly, Miyazaki discloses that "the phase θ_p of the commercial power supply is detected and compared with the phase θ_v of the inverter output voltage obtained by the voltage-phase arithmetic unit 18 from the magnetic flux phase θ_0, thereby obtaining the phase difference $\Delta\theta$. In the case of the synchronous exchange,

the switch 16 switches the input to the speed controller 15 from the difference in speed $\Delta\omega$ to the difference in voltage phase $\Delta\theta$." (Col. 5 lines 56 – 61.) Furthermore, Miyazaki also discloses that "the voltage phase difference $\Delta\theta = \theta_v - \theta_p$ is applied to the other fixed or stationary contact of the switch 16." (Col. 5, lines 45 – 47.) As remarked earlier, Miyazaki does not teach or suggest a "module coupled to the first and second voltage inputs to receive the first and second voltages, and configured to generate different signals representing the receipt of the first and second voltages," as required by claim 1.

Furthermore, Miyazaki discloses that the controller 15 receives an input $\Delta\omega$ from another node (above element 14) that generates a difference between an output ω^* of a rate circuit 14 and an output of a speed detector 7. (See Figure 1.) Particularly, Miyazaki discloses that "a speed controller 15 computes a torque current I_q^* which makes the speed difference $\Delta\omega$ between the speed [reference] ω^* obtained through a rate circuit 14 from a set speed ω_0^* set by a speed setting device 13 on the one hand, and the rotational speed ω of the induction motor 1 detected by the speed detector 7." (Col. 3, lines 24 – 31.) That is, even if Applicants were to construe the node above element 19 of Figure 1 (which has an output of the voltage phase difference $\Delta\theta$) as the claimed module, the controller 15 does not receive the output of the node. That is, Miyazaki does not teach or suggest a "micro-controller coupled to the module to receive the different signals," as required by claim 1.

Miyazaki also discloses that the controller 15 generates the torque current output I_q^* from the speed difference $\Delta\omega$. A switch 16 then receives either the torque current output I_q^* or the torque current difference I_{qa}^*. (See Figure 1.) Particularly, Miyazaki discloses that "the switch 16 selects the torque current reference I_q^* or I_{qa}^* depending upon a switching position and feed the selected reference to a current reference arithmetic unit 20." (Col. 3, lines 44 – 46.) The controller 15 therefore does not "selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 1. Therefore, Miyazaki does not teach or suggest a micro-controller that is "configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 1.

Similarly, Miyazaki also discloses that a speed controller 43 that generates the torque current output I_q^* from the speed difference $\Delta\omega$. A current reference arithmetic unit 45 then receives the torque current output I_q^*. (See Figure 8.) Particularly, Miyazaki discloses that "the difference $\Delta\omega$ (= $\omega^* + \omega_a^* - \omega$) is applied to a speed controller 43 which in turn computes a torque current reference I_q^* which makes the difference $\Delta\omega$ zero." (Col. 8, lines 1 – 4.) That is, as remarked earlier, Miyazaki does not teach or suggest a "micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 1.

Accordingly, claim 1 as previously presented contains patentable subject matter, and is therefore, allowable. Claims 2, 3, 8, 10, and 11 – 14 either directly or indirectly depend from claim 1. For at least the same reasons as set forth above with respect to claim 1, claims 2, 3, 8, 10, 11 – 14 also contain patentable subject matter, and are therefore, allowable.

Claim 7 requires, among other things, "a micro-controller configured to receive the first and the second voltages, to generate a soft control signal, and to selectively couple the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," and "a summing module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage." For at least the reasons discussed above with respect to claim 1, Miyazaki does not teach or suggest a "a micro-controller configured to receive the first and the second voltages, to generate a soft control signal, and to selectively couple the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," and "a summing module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage." Therefore, independent claim 7 is also allowable.

Independent claim 15

Claim 15 also stands rejected under 35 U.S.C. § 102(b) as being anticipated by Miyazaki. Particularly, the Office indicated that Miyazaki discloses

"a controller comprising a voltage input (2/6) to receive a first voltage (voltage from PS); a relay module (2/6) coupled to a voltage input (input to 2) and to generate a second voltage; a controller (15 or Fig. 8:43) coupled to the module to receive the voltages and configured to generate a control signal; a second relay (16) coupled to the microcontroller to select an electric machine operating voltage and the frequency regulated voltage using the control signal; and a summing module (Fig. 1: summing node above 19, Fig. 2: node below 18) coupled to the voltage inputs to receive the first and second voltages and configured to generate different signals represents the receipt of the voltages." (Page 4 of the Pending Action.)

Applicants respectfully disagree.

To prove a case of anticipation, the Office must show that the reference teaches every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. MPEP 706.02 (IV) and 2131.

Claim 15 is recited below:

A controller for an electric machine, the controller comprising:
a voltage input configured to receive a first voltage;
a relay module coupled to the voltage input, and configured to relay the first voltage and to generate a second voltage;
an inverter coupled to the relay module, and configured to be activated by the second voltage, and to generate a frequency-regulated voltage;
a micro-controller coupled to the first and the second voltages, and configured to generate a soft control signal;
a second relay coupled to the micro-controller, and configured to select an electric machine operating voltage from the first voltage and the frequency regulated voltage using the soft control signal; and
a module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage.

As remarked earlier, Miyazaki discloses a controller 15 that receives an input $\Delta\omega$ from a node (above element 14) that generates a difference between an output ω^* of a rate circuit 14 and an output of a speed detector 7. (See Figure 1.) Particularly, Miyazaki discloses that "a speed controller 15 computes a torque current I_q^* which makes the speed difference $\Delta\omega$ between the speed [reference] ω^* obtained through a rate circuit 14 from a set speed ω_0^* set by a speed setting device 13 on the one hand, and the rotational speed ω of the induction motor 1 detected by the speed detector 7." (Col. 3, lines 24 – 31.) Therefore, Miyazaki does not teach or suggest

a "micro-controller coupled to the first and the second voltages, and configured to generate a soft control signal," as required by claim 15, even if Applicants were to construe switches 2/6 as the claimed first and second relays. Applicants also note that the output ω^* of the rate circuit 14 and the output ω of the speed detector 7, which are fed to the controller 15, are signals from the rate circuit 14 and the speed detector 7, but not from the switches 2/6.

Additionally, Miyazaki discloses a node (node above element 19 of Fig. 1) that subtracts an output (θ_v) of a voltage phase arithmetic unit 18 from another output (θ_p) of a transformer 9. Output ($\Delta\theta$) of the node is subsequently fed to a speed reference arithmetic unit 19. (See Figure 1) As remarked earlier, Miyazaki discloses that "the speed-reference arithmetic unit 19 computes a torque current reference I_{qa}^* from the difference in phase $\Delta\theta$ between the motor-voltage phase θ_v and the power-supply-voltage phase θ_p and the torque current reference I_{qa}^* is fed into the current-reference arithmetic unit 20." (Col. 3, lines 61 – 66.) Even if Applicants were to construe "a relay module (2/6) coupled to a voltage input (input to 2) and to generate a second voltage" as the claimed relay module, and the "second relay (16) coupled to the microcontroller to select an electric machine operating voltage and the frequency regulated voltage using the control signal" as the claimed second relay, the node above the speed-reference arithmetic unit 19 is not "coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage," as required by claim 1. That is, Miyazaki does not teach or suggest a "module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage," as required by claim 15.

Miyazaki also discloses a node (Fig. 2: node below 18) that subtracts an output (θ_v) of a voltage phase arithmetic unit 18 from another output (θ_p) of a transformer 9. Output ($\Delta\theta$) of the node is subsequently fed to a switch 16. (See Figure 2.) Particularly, Miyazaki discloses that "the phase θ_p of the commercial power supply is detected and compared with the phase θ_v of the inverter output voltage obtained by the voltage-phase arithmetic unit 18 from the magnetic flux phase θ_0, thereby obtaining the phase difference $\Delta\theta$. In the case of the synchronous exchange, the switch 16 switches the input to the speed controller 15 from the difference in speed $\Delta\omega$ to the difference in voltage phase $\Delta\theta$." (Col. 5 lines 56 – 61.) Furthermore, Miyazaki also discloses that "the voltage phase difference $\Delta\theta = \theta_v - \theta_p$ is applied to the other fixed or stationary contact

of the switch 16." (Col. 5, lines 45 – 47.) As remarked earlier, Miyazaki does not teach or suggest a "module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage," as required by claim 15.

Accordingly, amended claim 15 contains patentable subject matter, and is allowable. Claims 16, 20 – 25 depend from claim 15. For at least the same reasons as set forth above with respect to claim 15, claims 16, 20 – 25 also contain patentable subject matter, and are therefore, allowable.

Independent claims 39 and 45

With respect to claims 39 and 45, the Office indicated that Miyazaki discloses "a first voltage (voltage along PS)," "a switch (2/6)," "a second voltage (voltage form PS)," "a summing module (Fig. 1: summing node above 19, Fig. 2: node below 18) coupled to the voltage inputs to receive the first and second voltages and configured to generate different signals represents the receipt of the voltages," and "a controller (15 or Fig. 8:43) coupled to the module to receive the different signals and configured to generate a control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor (Col. 4:32-49)." (Page 4 of pending Action.)

Claim 39 requires, among other things, "a module configured to receive the first and second voltages and to generate different signals to represent the receipt of the first and second voltages," and "a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch." For reason discussed above with respect to claim 1, Miyazaki does not teach or suggest "a module configured to receive the first and second voltages and to generate different signals to represent the receipt of the first and second voltages," and "a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch." Therefore, claim 39 is also allowable.

Claims 41, 42, 46, and 48 – 52 either directly or indirectly depend from claim 39. For at least the same reasons as set forth above with respect to claim 39, claims 41, 42, 46, 48 – 52 also contain patentable subject matter, and are therefore, allowable.

Similarly, claim 45 requires, among other things, "a micro-controller configured to receive the first and the second voltages, to generate a soft control signal, and to selectively couple the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," and "a summing module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage." For reason discussed above with respect to claim 1, Miyazaki does not teach or suggest "a micro-controller configured to receive the first and the second voltages, to generate a soft control signal, and to selectively couple the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," and "a summing module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage." Therefore, claim 45 is also allowable.

Independent claim 53

With respect to claim 53, the Office indicated that Miyazaki discloses "receiving power at a relay (2/6); controlling the relay to apply power to a first node (11) and a second node (9) of the controller; detecting whether the power is present at the first node (11) and second node (9); generating a signal based on the detecting (signal from summing node); and using the detected power to energize motor (1) when the signal indicates power is present at least one of the first and second nodes (the motor is energized when the power (PS) is present)." (Pages 4 – 5 of pending Action.)

Applicants respectfully disagree. However, Applicants have amended claim 53 to better define the invention.

Amended claim 53 requires, among other things, "generating a third signal based on the first and second signals." Miyazaki discloses a node (node above element 19 of Fig. 1) that subtracts an output (θ_v) of a voltage phase arithmetic unit 18 from another output (θ_p) of a transformer 9. Output ($\Delta\theta$) of the node is subsequently fed to a speed reference arithmetic unit 19. (See Figure 1) As remarked earlier, Miyazaki discloses that "the speed-reference arithmetic

unit 19 computes a torque current reference I_{qa}* from the difference in phase $\Delta\theta$ between the motor-voltage phase θ_v and the power-supply-voltage phase θ_p and the torque current reference I_{qa}* is fed into the current-reference arithmetic unit 20." (Col. 3, lines 61 – 66.) Even if Applicants were to construe "the relay (2/6)" as the claimed relay, the node above the speed-reference arithmetic unit 19 is not "generating a third signal based on the first and second signals," as required by claim 53. Rather, the node above the speed-reference arithmetic unit 19 generates $\Delta\theta$ from θ_v and θ_p. That is, Miyazaki does not teach or suggest "generating a third signal based on the first and second signals," among other things, as required by claim 53.

Accordingly, amended claim 53 contains patentable subject matter, and is allowable. Claims 54, 56, and 57 depend from claim 53. For at least the same reasons as set forth above with respect to claim 53, claims 54, 56, and 57 also contain patentable subject matter, and are therefore, allowable.

Independent claim 58

With respect to claim 58, the Office indicated that Miyazaki discloses, among other things, "a relay (2/6)," "a first power (PS) and a second power (from 5)," "a controller (15) connected to the motor and the relay, the controller comprising a first node (9) to receive a first power, a second node to receive a second power (11)," "a first circuit (summing node) to detect whether the first and second powers are at the first and second nodes and generate a signal; a second circuit (15) to receive the at least one signal and generate a switch control signal." (Page 5 of pending Action.)

Applicants respectfully disagree.

Claim 58 requires, among other things, "a first circuit configured to detect whether the first power is present at the first node of the controller, detect whether the second power is present at the second node, and generate at least one signal, the at least one signal being representative of whether the first power is present at the first node and whether the second power is present at the second node," and "a second circuit configured to receive the at least one signal and generate a switch control signal." For reason discussed above with respect to claim 1, Miyazaki does not teach or suggest "a first circuit configured to detect whether the first power is present at the first node of the controller, detect whether the second power is present at the

second node, and generate at least one signal, the at least one signal being representative of whether the first power is present at the first node and whether the second power is present at the second node," and "a second circuit configured to receive the at least one signal and generate a switch control signal," as required by claim 58.

CLAIM REJECTIONS – 35 U.S.C. § 103

The Office also rejected claims 10, 12, 14, 21, 23, 25, 26, 28, 29, 32, 35 – 38, 48, 50, 52, under 35 U.S.C. § 103(a) as being unpatentable over Miyazaki in view of U.S. Patent Number 6,570,778 ("Lipo").

To establish a *prima facie* case of obviousness, three basic criteria must be met. *M.P.E.P.* § 706.02(j).

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior[-]art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be both found in the prior art, not in applicant's disclosure.

Id. See also In re Rougget, 149 F.3d 1350, 1355 (Fed. Cir. 1998) ("To reject claims in an application under section 103, the Examiner must show an unrebutted *prima facie* case of obviousness. In the absence of a proper *prima facie* case of obviousness, an applicant who complies with the other statutory requirements is entitled to a patent.")

Dependent claims 10, 21, and 48

Particularly, the Office rejected claims 10, 21, 48 and indicated that "Miyazaki et al teach the limitations of claims 1, 15, 39. Referring to claims 10, 21, 48, they do not specify high and low speeds. Lipo et al teach high and low speeds (Fig. 3: full speed and low speed)." (Page 6 of pending Action.)

Applicants respectfully disagree.

Claims 10, 21, and 48 depend directly or indirectly from claim 1, 15, and 39, respectively. As remarked earlier, Miyazaki does not teach or suggest all the limitations of claims 1, 15, and 39, respectively.

Lipo does not cure the deficiency of Miyazaki. Lipo generally discloses an adjustable speed drive for single-phase induction motors. Specifically, Lipo discloses that "during full-speed operation, power is supplied directly from the AC power system to the main winding of the motor and from the inverter at line frequency but phase-shifted from the line voltage to an auxiliary winding of the motor to develop start up torque for the motor." (Abstract.) Therefore, neither Miyazaki nor Lipo, alone or in combination, teaches or suggests "a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 1, "a second relay coupled to the micro-controller, and configured to select an electric machine operating voltage from the first voltage and the frequency regulated voltage using the soft control signal," as required by claim 15, and "micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 39, respectively. Therefore, dependent claims 10, 21, 48 are allowable.

Dependent claims 12, 14, 23, 25, 50, and 52

The Office also rejected claims 12, 14, 23, 25, 50, and 52, and further indicated that "Miyazaki et al teach the limitations of claims 11, 13, 15, 49, 51. Referring to claims 12, 14, 23, 25, 50, 52, they do not teach the frequency being 60Hz. Lipo et al teach the operating frequency s 60 Hz (60Hz, Col. 6: 10-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Miyazaki et al use a frequency of 50 Hz as taught by Lipo et al in order to drive the motor a high speed." (Page 6 of pending Action.)

Applicants respectfully disagree.

Claims 12, and 14 depend directly or indirectly from claim 1. Claims 23, and 25 depend from claim 15. Claims 50, and 52 depend directly or indirectly from claim 39. As remarked earlier, Miyazaki does not teach of suggest all the limitations of claims 1, 15, and 39, respectively. Furthermore, Lipo does not cure the deficiency of Miyazaki as discussed earlier. For at least the reasons set forth above with respect to claims 1, 10, 15, 21, 39, and 48, neither Miyazaki nor Lipo, alone or in combination, teaches or suggests "a micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the first voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 1, "a second relay coupled to the micro-controller, and configured to select an electric machine operating voltage from the first voltage and the frequency regulated voltage using the soft control signal," as required by claim 15, and "micro-controller coupled to the module to receive the different signals, and configured to generate a soft control signal based on the different signals and to selectively control the coupling of one of the second voltage and the frequency regulated voltage to the motor with the soft control signal applied to the switch," as required by claim 39, respectively. Therefore, dependent claims 12, 14, 23, 25, 50, and 52 are allowable.

Independent claim 26

The Office further rejected claim 26 and indicated that

> "Miyazaki et al teach a method comprising proving a source of power (PS) to a machine (1) through a relay (2/6) when a first speed is selected; generating a second source (power from 5) of power when a second speed is selected, the second source (5) connected to the machine through the relay (2/6); switching the relay (216) to connect the machine to the one source (PS) corresponding to the first speed and to the second source (from 5) corresponding to the second speed; detecting a summed voltage (e.g. Fig. 2:summing node below 18); generating a control signal to select the switch; and enabling the switch once the summed voltage corresponds to a speed (col. 4:33-49; col. 8:43-60). They do not teach inputting the summed voltage into an A-D converter. Lipo et al teaches providing power to a relay (40) when a first speed is selected (Fig. 3: 140, full-speed/speed) generating a second source (power from 30) of power when a second speed is selected (Fig. 3: 140, full-speed/speed), the second source (30) connected to the machine through the relay (40); switching the relay (30) to connect the machine to the one source (21)

> corresponding to the first speed and to the second source (from 30) corresponding to the second speed; digitizing the voltage signal before the signal is fed to the motor (Fig. 3: 94). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Miyazaki et al to use an AID converter as taught by Lipo et al in order to more precisely control the power supplied to the motor." (Pages 6 – 7 of pending Action.)

Applicants respectfully disagree.

Amended claim 26 requires, among other things, "detecting a summed voltage from voltages corresponding to the first and the second speeds," and "inputting the summed voltage to an analog-to-digital converter." As remarked earlier, Miyazaki does not teach or suggest all the limitations of claim 26.

Lipo does not cure the deficiency of Miyazaki. Particularly, Lipo discloses that "the sense line 74 conducts sinusoidal voltage from the AC power system 21 to a resistive voltage divider 90 which scales the voltage to a level on the voltage divider output line 92 that is appropriate for signal processing. An analog-to-digital converter (A/D) 94 records and stores the most recent approximately 90° of the sinusoidal waveform of this voltage divider output line 92 for determination of waveform characteristics, e.g. voltage amplitude on the AC power system 21. The voltage divider output line 92 also feeds a comparator 96 that converts the sinusoidal signal to a logic level square wave on comparator output line 98." That is, the A/D converter receives the voltage divider output line 92, rather than "a summed voltage," as required by claim 26. Therefore, neither Miyazaki nor Lipo, alone or in combination, teaches or suggests all the limitations of claim 26. Accordingly, claim 26 is allowable. Claims 28, 29, 32, 35, 36, 37, and 28 depend from claim 26. As such, dependent claims 28, 29, 32, 35, 36, 37, and 28 include patentable subject matter, and are therefore, allowable.

The Office also rejected claims 10, 12, 14, 21, 23, 25, 48, 50, 52, under 35 U.S.C. § 103(a) as being unpatentable over Miyazaki in view of U.S. Patent Number 6,172,476 ("Tolbert").

Dependent claims 10, 21, and 48

The Office rejected claims 10, 21, 48 and indicated that "Miyazaki et al teach the limitations of claims 1, 15, 39. Referring to claims 10, 21, 48, they do not specify high and low speeds. Tolbert et al teach the first voltage indicated a high speed excitation (Col. 5:20-30) and the second voltage indicates low speed excitation (Col. 5:32-39). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Miyazaki et al to select a speed as taught by Tolbert et al in order to supply voltage to drive the motor at full and partial speeds." (Page 9 of pending Action.)

Applicants respectfully disagree.

Claims 10, 21, and 48 depend directly or indirectly from claim 1, 15, and 39, respectively. As remarked earlier, Miyazaki does not teach of suggest all the limitations of claims 1, 15, and 39, respectively.

Tolbert does not cure the deficiency of Miyazaki. Tolbert does not teach or suggest "a module coupled to the first and second voltage inputs to receive the first and second voltages, and configured to generate different signals representing the receipt of the first and second voltages," as required by claim 1, "a module coupled to the micro-controller, and configured to generate different signals to represent the first voltage and the second voltage," as required by claim 15, and "a module configured to receive the first and second voltages and to generate different signals to represent the receipt of the first and second voltages," as required by claim 39, respectively. Therefore, neither Miyazaki nor Tolbert, alone or in combination, teaches or suggests all limitations of claims 1, 15, and 39, respectively. Therefore, dependent claims 10, 21, 48 are allowable.

Dependent claims 12, 14, 23, 25, 50, and 52

The Office also rejected claims 12, 14, 23, 25, 50, and 52, and further indicated that "Miyazaki et al teach the limitations of claims 11,13,15,49,51. Referring to claims 12, 14, 23, 25, 50, 52, they do not teach the frequency being 60Hz. Tolbert et al teach the frequency is 60 Hz (Col. 5:20-27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Miyazaki et al to select a speed as taught by Tolbert et al in order to supply voltage to drive the motor at full speed." (Page 9 of pending Action.)

Applicants respectfully disagree.

Claims 12, and 14 depend directly or indirectly from claim 1. Claims 23, and 25 depend from claim 15. Claims 50, and 52 depend directly or indirectly from claim 39. As remarked earlier, Miyazaki does not teach of suggest all the limitations of claims 1, 15, and 39, respectively. Furthermore, Tolbert does not cure the deficiency of Miyazaki as discussed earlier. For at least the reasons set forth above with respect to claims 1, 10, 15, 21, 39, and 48, neither Miyazaki nor Tolbert, alone or in combination, teaches or suggests all the limitations of the claims 1, 15, and 39, respectively. Therefore, dependent claims 12, 14, 23, 25, 50, and 52 are allowable.

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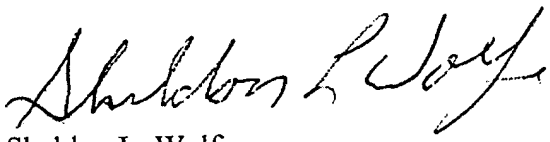
Respectfully submitted,



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